

The following courses are typically required for admission to Indiana University Optometry School: **CHEM 261, CHEM 262, CHEM 353, CHEM 354, CHEM 431, CHEM 432, BIOL 141, BIOL 333 (rec), BIOL 375/376, BIOL 422 (rec), PHYS 175 and PHYS 176 (or PHYS 205 and PHYS 206), STAT 241, PSY 201, MATH 230, ENG 101, HP 115 (rec), PHIL 201 (rec) and MNGT 141 (rec)**. Requirements vary by university. You should confirm the requirements of each program in which you are interested and consult with your advisor. The following courses are a typical course of study for a **biochemistry** major interested in Optometry school:

Fall Year 1

General Chemistry I (CHEM 261)	4
Principles of Biol (BIOL 141)	4
Calculus I (MATH 230)	4
Rhetoric & Composition I (ENG 101)	3
<u>1<sup>st</sup> Year Experience (UNIV 101)</u>	<u>1</u>
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Spring Year 1

General Chemistry II (CHEM 262)	4
Botany (BIOL 151) or Zoology (BIOL 152)	3
Intro to Public Speaking (CMST 101/107)	3
Rhetoric & Composition II (ENG 201)	3
<u>Medical Term. for Health Professions (HP 115) 2</u>	<u>2</u>
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Fall Year 2

Organic Chemistry I (CHEM 353)	4
Botany (BIOL 151) or Zoology (BIOL 152)	3
General Physics I (PHYS 175)	4
Fundamentals of Economics (ECON 175)	3
<u>Chemistry Seminar (CHEM 218)</u>	<u>1</u>
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Spring Year 2

Organic Chemistry II (CHEM 354)	4
Cell Biology (BIOL 334)	3
General Physics II (PHYS 176)	4
<u>Quantitative Analysis (CHEM 321) (or Summer) 4</u>	<u>4</u>
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Fall Year 3

Biochemistry I (CHEM 431)	4
Chemistry Seminar II (CHEM 318) ( <i>or year 4</i> )	1
Animal Physiology (BIOL 333) ( <b>BIOL elect</b> )	4
Principles of Statistics (STAT 241)	4
<u>Introduction to Ethics (PHIL 201)</u>	<u>3</u>
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Spring Year 3

Biochemistry II (CHEM 432)	4
Chemistry Seminar III (CHEM 418) ( <i>or year 4</i> )	1
*Intro to Research (CHEM 499/BIOL 499)	1
Genetics (BIOL 382)	4
<u>Introduction to Business (MNGT 141)</u>	<u>3</u>
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**TAKE OAT**

Fall Year 4

Survey of Physical Chemistry (CHEM 361)	4
Instrumental Analysis (CHEM 421)	4
*Intro to Research (CHEM 499/BIOL 499)	1
Core Electives	6
<u>Histology (BIOL 442)</u>	<u>4</u>
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Spring Year 4

CHEM Elective	4
Microbiology (BIOL 375) with Lab (BIOL 376)	5
Concepts in Wellness and Fitness (KIN 192)	1
<u>Core Elective x2</u>	<u>6</u>
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This is a suggested sequence of courses. There is some flexibility in this schedule. Courses taken in first year depend on math placement. In order to graduate, you must fulfill 39 credit hours at 300/400 level.

\*Research courses can be taken in any semester, two are required for the degree.

## DEPARTMENT FACULTY RESEARCH INTERESTS

### **Dr. Brian Bohrer (Ph.D. Analytical Chemistry, Indiana University)**

Environmental analysis of water samples aiming to detect the presence of agricultural and pharmaceutical pollutants using chromatography and mass spectrometry instrumentation

### **Dr. Shelly Blunt (Ph.D. Organic Chemistry, University of Iowa)**

Synthesis of quinoline alkaloids as breast cancer target agents and nucleosides as HIV/AIDS target agents and asymmetric epoxidations to form chiral drug targets

### **Dr. Jeannie Collins (Ph.D. Biochemistry, University of Southern Mississippi)**

Cytoskeletal proteins involved in motility, structural support, organelle transport and intracellular communication, DNA replication of both slime molds and plants

### **Dr. Priya Hewavitharange (Ph.D. Photochemical Sciences, Bowling Green State University)**

Synthesis of fluorescent molecules for biological applications such as photodynamic therapy for the treatment of cancer

### **Dr. Mark Krahlung (Ph.D. Analytical Chemistry, University of Wisconsin-Madison)**

Elemental analysis using atomic spectroscopy, solid phase extraction & gas chromatography–mass spectrometry, and electrospray ionization mass spectrometry

### **Dr. Jacob Lutter (Ph.D. Inorganic Chemistry, University of Michigan)**

Synthesis of metallacrowns that sensitize emission from trivalent lanthanide ion guests introduced into the macrocyclic core as potential imaging agents, energy upconvertors, and other applications

### **Dr. Evan Millam (Ph.D. Physical Chemistry, University of Minnesota)**

Electronic spectroscopy, ab initio computational chemistry, first principles determination of vibrationally resolved molecular electronic spectra, transition state calculations, calorimetry

### **Dr. Ken Walsh (Ph.D. Organic Chemistry, University of Bristol)**

Synthesis of carbohydrates and analogs, organocatalysis and organic synthesis, adaption of modern synthetic techniques for the teaching laboratory